

ANNUAL REPORT
OF THE
Medical Officer of Health

(JOHN C. THRESH, M.D., ETC.)

FOR THE

CHELMSFORD

Rural District Council

FOR THE YEAR 1905.

CHELMSFORD :
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Chelmsford Rural District Council.

REPORT

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Medical Officer of Health

FOR THE YEAR 1905.

Sub-Registration District.		Area in Acres.	Population Census, 1901.
1. Chelmsford	... Three parishes	14,029	3,737
2. Ingatestone	... Eleven "	28,476	6,226
3. Great Waltham	... Ten "	25,690	6,415
4. Great Baddow	... Five "	15,408	7,339
Total		83,603	23,717

TO THE MEMBERS OF THE CHELMSFORD
RURAL DISTRICT COUNCIL.

GENTLEMEN,

I have pleasure in submitting to you the 17th Annual Report which I have prepared since becoming your Medical Officer of Health. It is primarily intended for the use of the Local Government Board and the County Council, but it ought to be of still greater service and interest to the members of the Rural District Council and the inhabitants of the district.

The undulating character of the district and the absence of any dense centres of population conduce to its salubrity, but the difficulty of obtaining water in many parishes on account of their being on the London clay has caused heavy expenses to be incurred in providing public water supplies to secure that degree of cleanliness of person and of premises so necessary for the preservation of health. The low average

rainfall also increases the difficulty in obtaining water. During the past year the rainfall has only been 17.5 inches, the average for the previous 11 years being under 22 inches. This is 8 inches or more below the average for England and Wales.

The district comprises a large working class population almost entirely dependent upon agriculture and, therefore, not in a position to pay more than a small house-rent. In the parishes immediately adjoining the Borough of Chelmsford the workpeople are well housed as they can afford to pay a higher rent. This question of the housing of the agricultural labourer has continued to receive attention during the year and Messrs. Conybeare, Millbank, Gibson, Sacré, C. S. and J. Ratcliff, Speakman, Kidner and Barnard who were appointed a Committee to consider the whole question of the Housing of the Working Classes, met on two occasions and considered all the facts embodied in my last Annual Report which gave the results of the inspection of every parish in the district. Finally the following resolution was adopted by the Council at the recommendation of the Committee: "That whilst acknowledging that in many parishes more cottages are required, they are of opinion that the want would be met were the owners of real property to provide cottages for the occupation of the labourers employed thereon, and that it is the duty of the owners to provide such cottages rather than of a Rural Sanitary Authority out of the rates. That Parliament should legislate to enable Rural District Councils to call upon owners to provide such cottages and to afford them facilities for so doing."

At the last meeting of the Committee, Mr. Dewhirst, the Surveyor, produced plans of cottages with three bedrooms each which he estimated could be erected in blocks of 4 at £150 each, but this estimate did not include well, cesspool, fencing or land. It is probable, therefore, that the average cost per cottage would be £200. The cost of each cottage to the Council would be about £14 per annum during the period when the loan was being repaid, and the rental obtain-

able would vary from 3s. to 4s. 6d. per week, averaging possibly 3s. 6d.=£9 2s. a year. The rates would, therefore, be called upon to raise £4 18s. a year for each cottage.

For £1000 a year over 200 cottages could be provided which would about relieve all the over-crowding in the district, improve the health of the inhabitants, tend to prevent the spread of consumption and other infectious diseases, and at the end of 30 years the rents would relieve the rates to a larger extent than they had previously burdened them. It seems to me that the investment would in the long run be an exceedingly remunerative one and tend greatly to the material prosperity of the district. If I were asked whether I would rather see £1000 per annum spent in maintaining an Isolation Hospital or in providing 200 cottages for labourers, a few of which could be retained for hospital purposes, I should most emphatically recommend the provision of the cottages, as I now believe that we could far better cope with infection in this way than by means of hospitals. I shall have to point out later that hospitals have but little effect in preventing the spread of infection. The third bedroom in the cottages would very often suffice for isolation and the patient would in many cases be better there than herded with a large number of other cases in the ward of a hospital.

The Council was well represented at the Meetings of the Select Committee of the House of Lords on the Public Health Acts (Amendment) Bill which took evidence with reference to the effect of Building Bye-laws in Rural Districts, since the Chairman, the Surveyor and myself gave evidence. It evidently came as a surprise to their Lordships to find that there were two Rural Authorities (Chelmsford and Maldon) who had succeeded in gaining permission from the Local Government Board to so amend their bye-laws as to permit of the erection of cottages, under reasonable restrictions, of other material than that which is hard and incombustible and nine inches thick. The recent memorandum of the Local Government Board shews that they are now willing to

consider such amendments in other Rural Districts. I cannot help thinking that this very desirable change in the views of the Board was in a great measure due to the evidence we were able to adduce at the Conference held in 1902 that our demands were reasonable. I am not, however, in a position to say that the removal of restrictions has greatly influenced the building of cottages, but it has removed the excuse which was so generally made that cottages could not be erected at a reasonable cost because of the stringency of our bye-laws, and it has also greatly reduced the friction which so often occurred between builders and architects and the Sanitary Authority.

NEW DWELLING HOUSES ERECTED DURING 1905.

Buttsbury 2, Springfield 20, Woodham Ferris 8, Broomfield 11, Great Baddow 13, East Hanningfield 1, Ingatestone 1, Great Leighs 2, Danbury 6, West Hanningfield 1, South Hanningfield 1, Sandon 4, Great Waltham 2, total 84.

Two cottages at Sandon were represented as being unfit for human habitation and closed by the owner. There are several cottages at Highwood which are barely fit for habitation, but if condemned there is not a single vacant house into which a tenant could remove. Attempts are, therefore, being made to get the cottages repaired. Half-a-dozen or a dozen good cottages are much wanted here. Three cottages on the green at Writtle have been declared "obstructive" and the value agreed upon. The owner has received notice that if not pulled down in a reasonable time the Council will proceed to demolish them.

Sewerage and Drainage.

Various improvements have been effected in different parishes, chiefly in the way of extending existing sewers, cleansing outfalls, &c. The only important matter to record is the completion of the sewerage of Writtle. The sewers are all laid and the sewage disposal works completed, but at present only about 50 houses have been connected. Not-

withstanding this a very large amount of water comes down to the works. This ought to be prevented, as it all has to be pumped from the bacteria beds upon the land, and when all the houses are connected it will add materially to the amount of sewage to be treated. It would be far cheaper to divert this water than to be at the continual cost of pumping it. Moreover, it is very unwise to be continuously applying such an excessive amount of water to the land. It will have to be cut off sooner or later unless the Council wish to acquire additional land upon which to pump it, therefore, the sooner it is diverted the better. The sewerage of the village appears to have cost about £5,000, and it entails the additional burden of pumping the sewage. The annual cost cannot be far short of £400 per annum for the sewerage and sewage disposal work for about 200 houses and cottages!

Urban powers under Sec. 26 (i.) Public Health Act, 1875, have been obtained for the Writtle special drainage area, which will prevent any buildings being erected over any portion of the sewers.

There has never been the slightest indication of pollution of the river Wid from the effluent at the Writtle works. As a matter of fact, save during heavy rains, the land absorbs all the effluent and nothing more is seen of it. At Ingatestone the river was occasionally polluted. This led to a change of tenant of the sewage irrigation area. It is now let to Mr. Geo. Saner at a rental of £12 a year and he is to enter into an agreement to so treat the sewage as to prevent any pollution of the river.

The Waterhouse Estate still remains without sewers. There is only one practicable way out of the deadlock and that is to extend the Chelmsford sewers to the estate. There have been misunderstandings apparently which have delayed the necessary arrangements being made. Neither Council appears to be anxious to oblige the other. The feeling of jealousy between adjacent districts with many interests in common is greatly to be deplored.

Scavenging and House Refuse Disposal.

The districts scavenged remain as before. A Committee recommended that a scavenger be appointed to remove the house refuse from the houses in the village of Ingatestone and tenders were obtained. Local objections, however, prevailed, and the subject was dropped with instructions to the Inspector to see that the bye-laws relating to the removal of house refuse were enforced.

New contracts have been entered into for the scavenging of Great Baddow (£47 10s.) and Springfield (£97 per annum). The scavengers are to use properly hooded carts and dispose of the refuse without causing a nuisance. No complaint has been made about the disposal of the refuse, but one contractor was dilatory in providing proper covers for his cart. Complaints, however, have been received about the way in which the refuse from Chelmsford Borough is carted through Springfield and dumped in that parish. When the attention of the Borough Surveyor was directed to the matter greater care was taken by his men and the refuse heap was covered with earth. This has greatly improved matters, but complaints are still received. It appears to be more convenient to the Borough to deposit their house refuse in our Rural District than to take it to the more distant rural area within the Borough boundary.

Water Supply.

The past year's rainfall was again very low and springs and wells are being seriously affected. Fortunately a very large portion of the district is now supplied from mains. Altogether there must be some 25 miles of water mains ramifying through the various parishes supplied from the Great Baddow, Danbury, Waltham and Ingatestone Works. Every year sees the mains extended, but only a few of the extensions asked for can be carried out on account of the expense. Fortunately the advantages of a good and abundant water supply are now so well recognized that owners of property not infrequently offer

to pay considerable sums to secure extensions. By aid of these contributions the mains have, during the year, been extended in Sandon, Woodham Ferris and Ingatestone.

The reservoir at Rettendon has been re-rendered in cement, and the tank at Great Waltham has been cleansed. The spring supplying Little Waltham village has not yet been protected, but the agreement with the owner being completed this will now be done. At North End a spring has been acquired and the water piped to the roadside, affording a good and copious supply to all the houses near. The well at the Pig and Whistle (Chignal parish) has been put in good order and the pump repaired. An attempt to find water for the cottages in Green Street, Fryerning, failed, the gravel about there yielding very little water. A suggestion to extend the Great Baddow mains to Gingerbread Hall cottages was not acted upon, the cost, £127, being prohibitive. The cottages, therefore, continue to obtain water from a spring ditch. Such sources are particularly dangerous, but no other supply is available.

The additions to the Springfield and Great Baddow water works referred to in the last annual report have been completed. A loan of £1,685 sanctioned by the Local Government Board was obtained at $3\frac{3}{8}$ per cent. Water can now be delivered in the highest part of Springfield under a sufficient pressure and with storage cisterns of adequate capacity there is no reason why any house should not always have an abundant supply of water.

The new waterworks at Ingatestone approach completion. Water has been supplied to the town from the deep bore throughout nearly the whole year, but for a short time this source had to be cut off to allow of the instalment of the pumping machinery. The sinking of the well 350 ft. deep with the boring of 450 additional feet has occupied a good deal of time, but this is now satisfactorily completed.

The Writtle waterworks are at last completed and water is now being laid on to the houses. A great deal of trouble has

arisen here from the intrusion of the Thanet sand into the bore tube. For months the water remained so persistently turbid as to be useless. Attempts to clarify it by filtration, with and without the aid of coagulants, failed, but by continuous steady pumping and a re-arrangement of the sedimentation tank 1,500 gallons per hour of a very satisfactory water can be obtained. These works have cost about £7,000. The annual expense, including repayment of loan, will be about £550 a year.

The sewerage and water supply of this village with its 250 houses will cost about £1,000 per annum. It is no wonder that other villages absolutely refuse to listen to any suggestions for providing a public water supply or a system of sewers when they hear of such an expenditure. I am in no way blaming the Council. The village was in a grossly insanitary condition and sadly in want of water, and no scheme of lesser magnitude could be done with the sanction of the Local Government Board. The first scheme suggested would have supplied water and sewers for a cost of about £3,000, and though it would not have been so satisfactory or comprehensive as that just completed it would probably have been all that was necessary for putting the parish in a good sanitary condition. The village of Stock has received a good deal of attention during the year, as the water supply is insufficient in quantity and defective in quality. The two public wells are carefully constructed and though the water would be condemned by any analyst I do not apprehend any danger of water-borne disease from its use. I am convinced, however, that a water supply would be a great advantage to the village and would tend to improve the sanitary conditions and with it the general health of the inhabitants. The elevation of the village renders it a difficult place to supply, but if a scheme could be devised *at a reasonable cost* I should like to see it carried out, especially if it would supply also the adjoining parish of West Hanningfield, which is very badly off for water. Up to the present the Parish Council has objected to all the suggestion which have been made.

Some cases of lead poisoning occurred during the year at Galleywood (Great Baddow) from the use of a well water which acted upon the lead suction pipe leading to the pump. An account of the cases and of the peculiar character of the water is contained in an article published in the *Lancet*. The waters from all the wells around have been examined, and when they have been found capable of acting upon lead, and there is any lead pipe used in connection with the pump the tenants have been warned of the danger and the owners communicated with. I hope no further action will be necessary.

The following information has been kindly supplied to me by Mr. Dewhirst:—(see also chart page 12).

WATER SUPPLY.

Springfield and Great Baddow. Total supply 1905 28,599,590 gallons. The old No. 1 set of pumping plant has been replaced by a new plant of 10,000 gallons per hour capacity against a head of 150 feet, made by Messrs. Tangye of Birmingham. New mains laid :—

2,518 yards of 6 in. between Great Baddow and Springfield.

234 , 3 in. Sandford Lane, Springfield.

40 , 2 in. Brockley Road, ,

500 , 3 in. Great Baddow.

Ingatestone. The new well 350 feet deep has now been completed. It is constructed as follows :—

Surface to 5 ft. deep, 6 ft. 2 in. by 6 ft. 2 in. in $13\frac{1}{2}$ in.

brickwork.

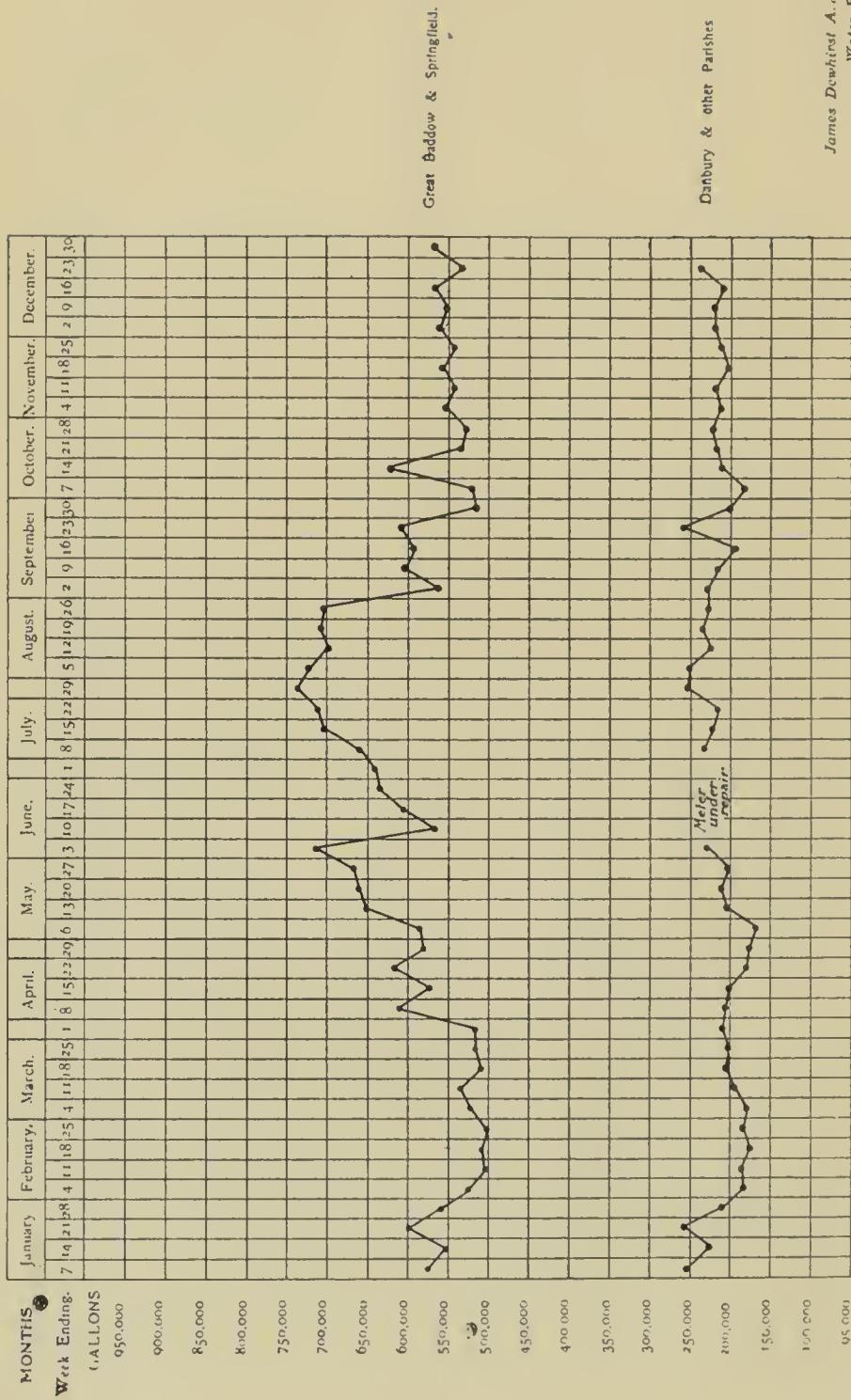
5 ft. to 89 ft. deep. 6 ft. 2 in. in diam. in cast iron cylinder.

89 ft. to 350 ft. deep. 6 ft. in diam. in 9 in. blue brick lining.

The bore hole 10 in. in diameter goes beyond the bottom of the well to a depth of 800 feet. A sluice valve is fixed on bore pipe near the bottom of the well and the valve rods are brought up to above water level so that if necessary the water can be shut out of the dry portion of the well.

A contract has been entered into for the new pumping machinery and the erection of the engine house and reservoir will be commenced in a few weeks time.

Chelmsford Rural District Council Waterworks Consumption Chart.



Danbury and other parishes. Total supply 1905
10,768,707 gallons. New mains laid:—

671 yards of 3 in. in Sandon.

300 „ 3 in. in Woodham Ferris.

The chart appended shews the weekly consumption of water on the Great Baddow and Danbury systems. The former supplies a community numbering 5,730 of an urban character, and the latter a series of thinly populated parishes with a population of 4,060.

Gt. Baddow system. Danbury system.

Gallons of water supplied per day		
per head of total population	13.7	7.3
Gallons of water per day per		
house or premises actually		
supplied	78.	30.

Places, etc., over which the Council exercises supervision.

Dairies and Cowsheds. The Regulations now in force have been modified and have been ordered to be printed and advertised. The new Regulations will come in force on Feb. 14th, 1906. The most important addition is a regulation for ensuring greater cleanliness of the milk by insisting upon the udders and teats of the cows being thoroughly clean, and the milkman clean. One cannot, however, expect much direct benefit from "Regulations" until cowkeepers and all the persons in their employ themselves see the necessity for perfect cleanliness in every detail connected with the milk supply. I am endeavouring to educate them and also the public. I wish to persuade the cowkeepers to pay greater attention to the production of their milk, and to persuade users of milk to insist upon having it guaranteed clean. The market day lecture which I gave on "Clean milk and how to produce it" has had, I hope and believe, a beneficial effect, and I am sanguine enough to believe that many farmers are now anxious to improve their methods and will do so as opportunity affords. I have examined a large number of milks

baeteriologically, mieroscopically and ehemically, with the view of establishing some standard of cleanliness, but it is obvious that such experiments must be extended over a considerable period to yield reliable results. A clean milk will not deposit on standing all night any visible coloured deposit on the bottom of the basin, whereas a dirty milk will show a speckled deposit when thus allowed to stand. If the householder tried this experiment and showed the deposit to the milkman, it would cause the latter to improve his source of supply.

The dairies and cowsheds are systematically inspected and improvements effected where possible. A great difficulty occurs in connection with those inadequately supplied with water, or supplied with water of a dangerous character. Fortunately in many parishes, the establishment of the public water supplies has enabled water from the mains to be laid on to the dairy premises.

Offensive Trades. The two offensive trades carried on in the district have given rise to no complaint. Complaints of nuisances arising from pig-keeping have been common, and some have occupied a good deal of the time of the Council. There is an unwillingness to interfere with the keeping of pigs, but those who keep them may be reasonably expected to take every care to prevent their being a nuisance to the neighbours. I am afraid, however, that a prosecution will have to be instituted, so as to make an example of an offender, before much permanent improvement is effected.

Bakehouses, Workshops and Workplaces. Generally speaking these are all satisfactory. As I remarked in my previous report, in this district where there are so few manufaactories, and no factories giving out homework, the conditions are very different from those which obtain in manufacturing districts, and little supervision is necessary. In connection with slaughterhouses most trouble arises from the neglect of the butchers to promptly remove blood and offal from the premises. A successful prosecution for infringing the bye-laws would greatly aid the work of the Inspector.

Systematic Inspections.

One or more parishes are systematically inspected each month and the results reported. Space will not permit of my giving more than a few notes with reference to certain of the parishes. The inspection includes dairies, cowsheds, slaughterhouses, bakehouses, workshops, schools and all cottages. The general system of drainage, the sewer outfalls, etc., are examined and samples of the water supply taken for analysis. The chief results of the inspection are recorded by myself or assistant, whilst the inspector takes full notes in connection with all nuisances detected.

Springfield. Singularly few nuisances detected, 4 houses found very damp, 4 cases of overcrowding. Waterless closets prevail throughout the village and the pans are frequently in a very dirty condition. Fortunately none of these closets are in a house. In one case the closet was flushed by means of a hose pipe which the tenant affixed to the kitchen tap. Few drainage defects found. No complaints about sewers save at one point where a house is too low for the connection to be satisfactory.

Great Baddow. No actual overcrowding discovered. Many houses in bad repair. Some let to tenants on condition that landlord executes no repairs. When this occurs eaves guttering becomes defective, making the walls damp, etc. Two small cowkeepers found who are not on register. Copies of Regulations and Notice *re* Registrations were sent to each. Trough closets at the Schools out of order, the flushing apparatus having become deranged. At one slaughterhouse there was an offensive accumulation of offal. Bakehouses not kept free from lumber, sacks, etc. being stuffed under the flour bins and kneading troughs.

Widford. Waterless w.c.'s in usual condition. Water supply from the Chelmsford mains, through small iron cisterns at the back of the houses, one cistern usually supplying two or more houses. One of these cisterns was decidedly dirty, not being properly covered. A drain blocked and causing a

nuisance, this appears to be a common occurrence. Some of the cottages very small and in bad repair.

Writtle. There are numerous nuisances here which will be abated as soon as drains can be relaid and connected with sewers, and when existing privies and cesspits are replaced by water closets. The back yards and premises of many cottages are in a very insanitary condition. Only one gross case of overcrowding detected. It had to be pointed out to one baker that he was allowing too great an accumulation of dust and dirt, and that something more was necessary than merely whitewashing twice a year. Sewage works in good order, no effluent entering the river. No complaint made about scavenger.

Ingatestone. Chief cause of nuisance is accumulation of house refuse in the back yards, or from having ashpits too near the back doors. Water closets general, a few with water laid on, some have cisterns which are so constantly out of repair that owners have refused to keep them in order. One closet found over an old well and in danger of falling in. The water supply is very limited just now and many complaints were received. Sewage irrigation area was not being satisfactorily worked and an offensive effluent was entering river. At one large farm a dirty pond water was being used for milk cooling.

Margarettng. Improvements to prevent pollution of water were suggested at two farms. One privy cesspit nuisance of very serious character noted. One or two houses dilapidated. No serious overcrowding noted.

Roxwell. The houses here are as a rule in excellent condition. A few are on the verge of overcrowding, but not so overcrowded as to warrant more than a word of caution. There has been a considerable improvement since the last inspection due to the laying of a drain near the church and to repairs to closets. One pigkeeper warned that he was not keeping his styes sufficiently clean. Water fairly abundant from public spring. Another spring recently built round and protected by a private owner for use of his tenants.

Stock. Four of the worst cottages occupied at time of last inspection are now untenanted. Two other cottages have been made into one, but are in bad repair. Certain householders in village complain that they have nowhere to throw their house refuse or the contents of their cesspits. Some new cottages have been provided with water closets, the cisterns being fed with water collected from the roofs. No water, therefore, available during the summer. Water supply very limited. The public pump on the green is kept locked from 8 a.m. until 8 p.m. Certain open wells examined and found to contain low forms of animal life (worms, etc.) Children drinking from spout of Jubilee pump. Roadside spring near Jubilee cottages liable to serious pollution. Certain dairy farms very unsatisfactory, some of the worst in the district. At one place all drainage from 4 sheds flows into the straw yard. There is no cesspool. One shed for 28 cows is dark and imperfectly ventilated, and pervaded by a sweet, sickly odour of a very unhealthy character.

Runwell and Rettendon. Many cottages erected during recent years. No lack of accommodation. At certain houses there are pail closets with no fronts to the seats and the latter are nearly a foot above the tops of the pails. Flies abound and pass to and fro between houses and closets. Tenants neglect to add dry earth. Ditch receiving discharge from certain drains in an offensive condition. One house in which a child recently died from bronchitis is very damp, damp rising from the ground. Drainage of a cowshed causing a nuisance to houses near. Water mains ramify through both parishes.

Woodham Ferris. Cottages being erected down Middle Barn Lane. Only water supply from roofs. Owner wants mains extending. Most other parts well supplied. Great lack of cottage accommodation in village. People waiting for houses in order to get married. Overcrowding prevalent. Several dilapidated houses occupied. On two premises the cowsheds were found in a generally dirty condition and wanting whitewashing. School privies too near the windows.

Little Baddow. Milk kept in one dairy under very dirty conditions. Another dairy near scrupulously clean. One house so dirty that an order should be served under See. 46 Public Health Act. Springs supply part of parish, mains the remainder. Springs much better protected than formerly.

Gool Easter. Plonty of old houses, but most of them in fair condition. Some are being repaired preparatory to being sold, and others which were recently sold have been since repaired. Nine cottages and a meadow sold for £180! Few of these older places have three bedrooms. Several drain and privy nuisances found. School closets recently improved. Ashes and shovels provided for use with pails. Seventeen persons using one privy. One bakehouse needed whitewashing. In the other, wood is used for fuel and the raking out of ashes makes much dust and dirt.

Great Waltham. Houses, etc., in good condition. Very few nuisances. Water supply from ram not too abundant. Water level at spring lower than usual. No nuisance arising from the small sewage tanks.

Improvements effected and required.

These have already been referred to in the body of this report. The Writtle Waterworks being completed and the sewers laid it now only remains to get all the houses connected as quickly as possible.

The Ingatestone Waterworks have advanced to the final stage.

The Great Baddow and Springfield Waterworks have been greatly improved and water can now be supplied to Springfield under sufficiently high pressure.

A supply of water to North End has been completed at a trifling cost, by piping a spring.

New Regulations for Dairies, Cowsheds and Milkshops have been adopted.

The matters requiring attention are the provision of better water supplies to Stock, West Hanningfield and the outlying parts of many other parishes, and the provision of cottages in the villages.

Taking everything into consideration there are few rural districts in this country in a better sanitary condition and few, if any, in which the sanitary administration is so efficient.

The chief requirement of this and all other districts is the education of the people with reference to matters pertaining to the preservation of health, and I am glad to find that the County Council through its Education Committee recognize the importance of such education so far as it can be taught to children, and that in most schools courses of lessons are given bearing upon cleanliness and health. These are in three series, the first for boys and girls, the second for girls only and the third for boys only. The syllabus was carefully thought out and I feel sure that a certain amount of the information imparted will be so imprinted upon the youthful minds as to be utilized in after life.

To attempt the teaching of adults amongst the labouring classes is a difficult task. The Inspector no doubt does a good deal, the printing of the reports of the Council meetings also is beneficial, but I think more good is being done by the cottage and other nurses so many of whom are now working in our villages. The nurses sent out by the Essex County Cottage Nursing Association are instructed in the elements of hygiene, and when nursing in the cottages they are not only alleviating suffering and helping to restore health, but they are by example and precept acting as Health Missioners and in this way exerting a beneficial influence upon the families of those whom they are called upon to nurse. I feel sure that in the future it will be more by Education than by sanitary administration that the general death rate will be lowered, and the average age of the living increased.

Infectious Diseases.

The way in which such diseases are combatted in this district has been so often given that it is unnecessary to repeat again. During the year a circular letter was sent to every medical man practising in the district asking them voluntarily to notify any case of phthisis occurring in their practice and

offering to disinfect any premises in which a phthisical patient had been residing. Cards and pamphlets obtained from the National Association for the Prevention of Consumption are also provided and distributed judiciously wherever they are likely to be useful. No notification has been received, but most of the houses in which persons have died from phthisis have been disinfected. In one or two instances the Inspector has disinfected houses after a death from cancer. This may not be of any benefit, but it cannot do any harm to have a house in which such a case has occurred thoroughly disinfected and cleansed.

The Isolation Hospital has been kept in constant use throughout the year, but its effect in preventing the spread of disease has not been very marked. In fact the more carefully one studies this subject—"the rôle of the isolation hospital in the prevention of disease"—the more difficult it becomes to see how its benefits can be demonstrated statistically. The cases which spread infection are not those which are diagnosed and isolated, but those mild cases which are not diagnosed and not isolated and from very careful enquiries made during the course of the year in parishes where scarlet fever has been prevalent I am convinced that where one case has been notified two cases have escaped notification. In one village in which I have taken a particular interest whilst three cases of scarlet fever have been notified over 20 similar, though in many instances milder cases have occurred which were not notified. I found several of these cases myself when making enquiries and saw three of them when the rash was well developed, one of these in consultation with another medical man. These cases were typical of a large number of others which have occurred during the year. Many of them have been attended by medical men, some of whom have notified them as scarlet fever, others have regarded them as German measles, and others, including myself, don't know what to call them. It is tolerably certain that there were many cases of true scarlet fever, but tolerably conclusive evidence can be

adduced to prove that some which were diagnosed as scarlet fever were certainly not such. If it were not for this I should have been strongly inclined to think that all the cases were scarlet fever of an exceptionally mild type, but when one sees a number of children attacked, all of whom to my knowledge had suffered from true scarlet fever, and children who are sent into the hospital contracting the true disease within a week of admission, the conclusion is forced upon one that we are dealing with some other infection. The disease seems to be between German measles and scarlet fever and may or may not be Dr. Dukes "Fourth" disease.

To add to the complexity a certain number of cases of true measles occurred, but the number of these has not increased even in the most infected area so as to assume epidemic proportions. Recent investigations have shewn that there are several diseases closely allied to enteric fever and due to infection by organisms of a closely allied character, and I believe there is likewise a series of diseases due to closely allied micrococci and producing symptoms more or less resembling measles and scarlet fever. If we assume also, as must almost certainly be the case, that each of these organisms may vary in "virulence," we can quite understand the difficulty if not the absolute impossibility of making an accurate diagnosis.

No doubt there is a grand opening for bacteriological research, but the subject is a difficult one, and although we have taken swabs from many throats and obtained an abundance of cocci our time has been too limited to enable any definite knowledge to be obtained. The only thing that struck us was that we never obtained a recognizable growth of the micrococcus conglomeratus, which we had occasionally obtained from the throat of children suffering from scarlet fever. Cases of the above doubtful character have occurred in the following parishes:—East and West Hanningfield, Woodham Ferris, Danbury, Chignall, Writtle, Springfield, Stock, Buttsbury, Widford, Broomfield, Great Leighs, Ingatestone and possibly elsewhere.

So far as I could learn the incubation period was short, and usually the prodormal symptoms were so slight as to be scarcely noticeable, but in a few instances there was nausea or actual vomiting and slight feverishness about 24 hours before the rash appeared. The rash was punctuate, closely resembling that of scarlet fever, but rarely associated with any well marked reddening of the intervening skin. Tongue never resembled that of typical scarlet fever. Rash very evanescent, often had entirely disappeared in 24 hours and child was then quite well, generally returning to school on third or fourth day. As a rule there was no desquamation noticed, if any it appeared to be slight and in very small flakes, branny. In most cases seen by me there was some enlargement of the sterno-mastoid or post cervical glands, but usually parents had noticed nothing of this kind. I heard of certain cases in which there must have been marked glandular enlargement as the children were said to have had mumps with a rash. Throat was usually slightly congested, but the children rarely complained of any pain or soreness. In a few instances the eyes looked watery before the rash came out, but running of the eyes or nose was not a prominent symptom.

An epidemic of an anomalous but somewhat different character occurred in the autumn in Stock. Dr. Carden says that it attacked people of all ages. Influenzal symptoms were present in the form of depression, especially in adults, with tingling of the extremities. In many cases diarrhoea with offensive stools was a prominent symptom. In some the throat was injected, in others not. The rash was somewhat like that of scarlet fever, but occurred on the face as well as on the trunk and extremities and was often followed by desquamation.

The prevalence of these anomalous diseases in the Writtle and Highwood districts was referred to in my report for 1904.

DISTRIBUTION OF INFECTIOUS DISEASES NOTIFIED DURING
THE YEAR.

		Diphtheria.	Enteric Fever.	Scarlet Fever.	Erysipelas.	Small Pox.	Puerperal Fever.	Total.
Buttsbury	...	0	0	2	0	0	0	2
Ingatestone and Fryerning	...	2	1	0	0	0	0	4
Margareting	...	0	0	0	0	0	0	0
Rettendon	...	0	0	0	0	0	0	0
Runwell	...	0	0	3	0	0	0	3
Stock	...	0	0	2	0	0	0	2
West Hanningfield	...	1	0	0	0	0	0	1
East Hanningfield	...	0	0	0	1	0	0	1
South Hanningfield	...	0	0	0	0	0	0	0
Woodham Ferris	...	0	0	0	0	0	0	0
Roxwell	...	2	0	0	0	0	0	2
Widford	...	0	0	3	0	0	0	3
Writtle	...	1	0	0	1	0	0	2
Boreham	...	1	0	3	0	0	1	5
Broomfield	...	0	0	5	0	0	0	5
Chignall	...	1	0	2	1	0	0	10
Good Easter	...	1	0	2	1	0	0	4
Great Waltham	...	0	0	0	0	0	1	1
Great Leighs	...	0	0	7	0	0	0	7
Little Waltham	...	0	0	0	0	0	0	0
Pleshey	...	0	0	0	0	0	0	0
Danbury	...	0	0	0	1	0	0	1
Great Baddow	...	2	1	7	2	0	0	12
Little Baddow	...	0	0	1	0	0	0	1
Springfield	...	2	1	48	3	0	0	54
Total..	...	14	3	91	10	0	2	120

The total number of cases of infectious disease notified during the year has been below the average and 91 out of the 120 were of scarlet fever.

Only 14 cases of diphtheria were notified throughout the whole year and these were distributed over eight parishes, the greatest number occurring in any one parish being three. In certain of these cases a bacteriological examination did not confirm the clinical diagnosis.

The origin of some of these isolated cases is difficult to explain. One patient had been visiting at a house in which there was a case of diphtheria. He returned home, developed the disease and infected another member of the family. In

two other instances the patients had been away and may have been infected outside the district. Two cases occurred in a house near which was a serious cesspool nuisance. No apparent cause was found in the other cases.

The number of cases of typhoid or enteric fever is very small notwithstanding that a large population is still dependent and must remain dependent upon shallow wells for their water supply. In not one of the three cases was there any evidence implicating well water. One patient was a labourer on the Springfield sewage farm, another was a child who admitted having paddled in and drunk water from a sewage polluted ditch, and the third was a woman residing in a house near where London manure was unloaded. About 14 days before the patient was taken ill this manure had been carted past the house causing an intolerable stench. No other cause could be discovered. One of the cases of puerperal fever had been attended by an uncertified midwife who knew nothing about the use of antiseptics.

Measles have been prevalent in Ford End, Rettendon, Great Baddow, Great Leighs and West Hanningfield, and Whooping Cough in East and South Hanningfield, Margaretting and Writtle. An outbreak of ringworm gave a good deal of trouble at one school. The schoolmasters and mistresses as a rule promptly inform me if any case of infectious illness comes to their knowledge.

Anthrax in cattle has been notified on four occasions but no person has been infected.

Three small-pox contacts came into the district from infected ships and were kept under observation, but they neither developed the disease nor communicated the infection to others.

Effect of Isolation in Hospital on the prevention of disease.

The following Table is compiled from the records of 83 cases of scarlet fever, of which I have sufficient information:—

No. of infected houses.	No. of children between ages of 1 & 11 years in the Infected Houses.	No. of children sent to hospital.
Cases treated in the hospital—		
34	108	53
Cases treated at home—		
21	53	30
Hospital cases in which there was no child left in the house after removal of the patient—		
4	4	4
Home cases in which there was no other child in the house but the one infected—		
8	8	8
Deducting the cases in which the spread of infection in the house was impossible (so far as children are concerned) we have under hospital treatment—		
30	104	49
Under home treatment—		
13	45	22

Where the patients were removed to the hospital 47 per cent. of the susceptible children were attacked. Where the patients were not removed 49 per cent. of the susceptible children were attacked, an advantage of 2 per cent. only in favour of the hospital.

Mortality Statistics.

The deaths registered in the district during the year were 267, but of these two occurred in the Billericay Isolation Hospital and do not belong to the district. Twenty-one deaths occurred in the workhouse amongst inmates from the rural district hence the nett number of deaths of persons belonging to the district is 286. This gives a death rate of 11.5 per 1,000, the lowest I have hitherto recorded. Such a low death-rate it would be impossible to maintain, as in this district with a practically stationary population it would mean that the average age at death would soon reach 87 years.

The average death-rate for the preceding 11 years is 13.9. This is very favourable, especially when we consider that such

a large proportion of young adults, amongst whom the death-rate is a minimum, migrate to the towns.

Of the 286 persons who died 129 had attained an age exceeding 65 years, and only 37 were infants under 1 year of age.

The infantile mortality was only 68 per 1,000 births, an exceedingly low rate and much lower than our own average, 93.

From all the infectious diseases put together only 17 deaths occurred and nine of these were from whooping cough. Measles, scarlet fever, diphtheria and puerperal fever caused only one death each, epidemic influenza and diarrhoea two deaths each.

The so-called zymotic death-rate was only .6 per 1,000 population, an exceedingly low rate.

Phthisis caused 22 deaths and cancer 27 deaths. The number which have occurred in recent years are as under :—

		Phthisis.		Cancer.
1900	...	25	...	21
1901	...	19	...	26
1902	...	25	...	31
1903	...	24	...	22
1904	...	17	...	18
<hr/>				
Average	...	22	...	24
<hr/>				

The phthisis deaths are just the average, but the cancer deaths are above the average though not so numerous as in 1902. Unfortunately, neither disease shews any signs of decreasing. At present we are powerless to cope with cancer, but phthisis is a preventible disease, and if we could diminish over-crowding and teach parents how to bring up their children so as to reduce the risk of infection to a minimum and could teach patients the precautions necessary to prevent the infection of other members of their family or their friends and fellow workmen the mortality from phthisis would soon decrease.

The death-rates in the various sub-registration districts and in various groups of parishes are given in the subjoined tables.

SUB-REGISTRATION DISTRICTS.

	1905.		Average previous 6 years.
Great Waltham	14.2	...	13.5
Chelmsford	16.0	...	14.9
Great Baddow	9.9	...	13.9
Ingatestone	9.8	...	12.8

Parishes.	Popula- tion, 1904.	Death- rate, 1904.	Death- rate average 22 years 1883 to 1905.
Boreham, Little Baddow, Danbury, Sandon	2,577	14.0	13.4
Runwell, Rettendon, Woodham Ferris and the Hanningfields	2,809	13.2	13.95
Roxwell, Chignall, Good Easter, Mashbury and Pleshey	1,966	12.0	15.0
Writtle (including Highwood)	2,752	15.6	14.1
Great Waltham	2,050	13.5	13.0
Broomfield, Little Leighs, Little Waltham and Great Leighs...	2,326	13.3	15.3
Springfield	3,400	8.5	13.4
Great Baddow (including Galleywood)...	2,330	12.0	15.5
Margaretting and Widford	878	12.5	14.1
Stock and Buttsbury	1,130	8.0	15.8
Ingatestone and Fryerning	1,750	5.7	14.0

BIRTH-RATE. The birth-rate is only 22.7 per 1,000 and though not the lowest recorded it is a very low rate. With this exception all the statistics are of a very favourable character and confirm the opinion elsewhere expressed in this report on the generally satisfactory sanitary condition of the district.

JOHN C. THRESH.

TABLE I.
VITAL STATISTICS OF WHOLE DISTRICT DURING 1905 AND PREVIOUS YEARS.
CHELMSFORD RURAL DISTRICT.

YEAR.	Population estimated to Middle of each Year.	Births.		DEATHS UNDER 1 YEAR OF AGE.		DEATHS AT ALL AGES.		DEATHS AT ALL AGES.		Deaths of Non-Residence of Public Institutions.	Deaths of Non-Residence of Private Institutions.	Deaths of Non-Residence of Public and Private Institutions beyond the District.	Deaths at all Ages, Nett.	
		Rate.*	Number	Rate per 1,000 Births	Number	Rate per 1,000 Births	Number	Rate.*	Total					
1895	23,211	587	25.3	55	94	304	13.9	2	21	323	13.9	305	13.9	
1896	23,400	571	24.4	50	88	287	12.3	2	20	343	14.6	369	15.6	
1897	23,521	582	24.7	53	91	311	13.2	5	37	292	12.2	304	12.6	
1898	23,603	523	22.1	69	132	336	14.2	6	37	310	13.0	310	13.0	
1899	23,650	544	23.0	48	90	275	11.6	9	26	316	13.2	316	13.2	
1900	23,700	505	21.3	58	115	383	16.1	12	2	304	16.6	314	13.1	
1901	23,800	543	22.8	42	77	281	11.8	9	1	35	13.2	315	13.2	
1902	23,850	549	23.0	36	65	283	11.9	10	7	34	13.0	310	13.0	
1903	23,920	581	24.3	54	93	279	11.6	8	6	45	13.2	316	13.2	
1904	23,920	534	22.3	46	86	282	11.8	2	2	34	13.1	314	13.1	
Averages for years 1895-1904		23,657	552	23.3	51.1	93	12.8	6.5	42	302	328	328	13.9	
1905	23,950	544	22.7	37	68	267	11.65	2	2	21	286	11.5	286	11.5

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

Note.—The deaths included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district. The deaths included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public institutions" taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums. A list of the Institutions in respect of the deaths in which corrections have been made is given at the foot of this Table.

Area of District in acres (exclusive of area covered by water), 83,603.
 Total population at all ages, 23,717
 Number of Inhabited Houses, 5,498
 Average Number of Persons per House 4.3
 At census
 of 1901.

I.
 Institutions within the District receiving sick and
 infirm persons from outside the District.

Billericay Rural District Council Isolation Hospital.
 Chelmsford Joint Hospital

II.
 Institutions without the District receiving sick and
 infirm persons from the District.

Union Workhouse
 Chelmsford & Essex Infirmary

TABLE II. VITAL STATISTICS OF SEPARATE LOCALITIES IN 1905 AND PREVIOUS YEARS.

CHELMSFORD RURAL DISTRICT.

NAME OF LOCALITIES	GREAT VALTHAM.			CHELMSFORD.			GREAT BADDOW.			INGATESTONE.			WRITTLE.								
	YEAR.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.				
1895	5133	115	67	8	293	6	2	0	6550	142	76	12	6175	146	71	11	5060	156	80	18	
1896	5133	128	74	13	293	4	2	1	6673	145	98	16	6175	168	98	17	5126	138	55	11	
1897	5133	145	80	16	293	7	3	1	6760	157	93	16	6175	156	76	9	5160	137	71	9	
1898	5133	120	86	13	293	7	3	0	6842	141	118	15	6175	136	96	11	5160	112	82	22	
1899	6415	150	89	15	3666	93	55	8	6996	170	88	16	6175	143	80	19	...	...	...	...
1900	6415	139	96	12	3706	92	73	9	7196	123	129	18	6290	131	60	9	...	...	...	...
1901	6415	147	78	10	3760	92	43	8	7385	169	103	14	6240	151	96	19	...	...	...	...
1902	6420	136	88	5	3770	102	55	10	7420	167	96	16	6240	135	91	10	...	...	...	...
1903	6450	165	79	14	3780	96	54	12	7450	164	106	14	6240	144	71	5	...	...	...	...
1904	6450	122	93	15	3780	100	54	11	7450	160	91	6	6240	152	78	14	...	...	...	...
Averages of Years 1899-1904 }		6428	143	87	12	3744	96	56	9·7	7315	159	102	14	6238	143	80	12·6
1905	6450	153	92	11	3780	90	60	14	7480	164	74	6	6240	137	61	6	...	...	...	...

* In 1899 a re-arrangement of the Sub-registration districts took place

NOTES—(a) The separate localities adopted for this Table are areas of which the populations are obtainable from the census returns, namely, registration sub-districts.

(b) Deaths of residents occurring in public institutions beyond the district are included in sub-columns c of this Table, and those of non-residents registered in public institutions in the district excluded. (See note on Table I. as to meaning of terms "resident" and "non-resident".)

(c) Deaths of residents occurring in public institutions, whether without or within the district, are allotted to the respective localities according to the addresses of the deceased.

(d) The gross totals of the several columns in this Table respectively equal the corresponding totals for the whole districts in Tables I. and IV.; thus, the totals of sub-columns a, b, and c agree with the figures for the year in the columns 2, 3, and 12, respectively, of Table I.; the gross total of the sub-columns d with the total of column 2 in Table IV., and the gross total of sub-columns d with the total of column 3 in Table IV.

TABLE III.
CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1905.
CHELMSFORD RURAL DISTRICT.

Norr.—The localities adopted for this Table are the same as those in Tables II. and IV.

TABLE IV.
CHELMSFORD RURAL DISTRICT.—CAUSES OF, AND AGES AT, DEATH DURING YEAR 1905.

CAUSES OF DEATH.	DEATHS IN WHOLE DISTRICT AT SUBJOINED AGES.				DEATHS IN LOCALITIES (AT ALL AGES).				DEATHS IN PUBLIC INSTITUTIONS.			
	All ages.	Under 1.	1 and 5 under 5.	5 and 15.	15 and 25 under 25.	25 and 65.	65 and upwards.	under 65.	Waltham.	Great Beddow.	Chelmsford.	Higaretstone.
Small-pox	1	1	1	1	1	1	1	1	1	1	1	1
Measles	1	1	1	1	1	1	1	1	1	1	1	1
Scarlet Fever	1	1	1	1	1	1	1	1	1	1	1	1
Whooping Cough	4	5	1	1	1	1	1	1	2	1	1	1
Diphtheria and Membranous Croup	1	1	1	1	1	1	1	1	1	1	1	1
Croup	1	1	1	1	1	1	1	1	1	1	1	1
Typhus	1	1	1	1	1	1	1	1	1	1	1	1
Fever {												
Enteric												
Other continued												
Epidemic Influenza	1	2	1	1	1	1	1	1	1	1	1	1
Cholera	1	1	1	1	1	1	1	1	1	1	1	1
Plague	1	1	1	1	1	1	1	1	1	1	1	1
Diarrhoea	2	1	1	1	1	1	1	1	1	1	1	1
Bacteritis	1	1	1	1	1	1	1	1	1	1	1	1
Puerperal Fever	1	1	1	1	1	1	1	1	1	1	1	1
Erysipelas	1	1	1	1	1	1	1	1	1	1	1	1
Other Septic Diseases	2	1	1	1	1	1	1	1	1	1	1	1
Phthisis	22	1	4	1	1	3	15	11	7	4	4	4
Other Tubercolar Diseases	9	1	4	1	1	1	6	17	12	3	3	3
Cancer, Malignant Disease	27	4	3	1	1	1	6	17	16	5	5	5
Bronchitis	27	4	3	1	1	1	2	4	3	1	1	1
Pneumonia	11	2	3	1	1	1	2	1	1	1	1	1
Pleurisy	1	1	1	1	1	1	1	1	1	1	1	1
Other Diseases of Respiratory Organs	2	1	1	1	1	1	1	1	1	1	1	1
Alcoholism	3	1	1	1	1	1	1	1	1	1	1	1
Cirrhosis of Liver }	1	1	1	1	1	1	1	1	1	1	1	1
Veneral Diseases	4	4	4	4	4	4	3	3	2	2	1	1
Premature Birth	4	4	4	4	4	4	3	3	2	1	1	1
Diseases and Accidents of Parturition	32	11	1	1	1	1	2	7	6	6	6	6
Heart Diseases	11	2	2	2	2	2	2	2	2	3	3	3
Accidents	113	20	2	3	3	3	16	69	35	24	29	25
Suicides	113	20	2	3	3	3	16	69	35	24	29	25
All other causes	113	20	2	3	3	3	16	69	35	24	29	25
All causes	286	37	15	8	17	80	129	60	56	56	56	56

TABLE V.
TABLE OF METEOROLOGICAL DATA, DEATHS, AND OF INFECTIOUS DISEASES FOR THE YEAR ENDING
DECEMBER 31ST, 1905, COMPARED WITH PREVIOUS YEARS.

TABLE VI.

SUMMARY OF WORK done through the Sanitary Inspector
in the Rural Sanitary District of Chelmsford during the
year ending December 31st, 1905.

	Total Number for Year	Results of Inspection, &c.
1. Complaints received	21	Nuisances abated
2. Nuisances detected without complaint	254	
3. Nuisances abated	258	
4. Notices served	275	17 notices outstanding Housing Working Classes Act
5. Summonses taken out	1	
6. Convictions	1	
7. Cottages inspected	1685	" "
8. Lodging-houses inspected	Nil	
9. Slaughter-houses inspected	9	
10. Bakehouses inspected	40	
11. Dairies and Milk Shops inspected	85	
12. Cowsheds inspected	85	
13. Workshops inspected	175	Includes bakehouses
14. Filthy houses cleansed, sec. 46 Public Health Act, 1875	5	
15. Houses disinfected	83	
16. Overcrowding abated	7	
17. Houses placed in habitable repair	8	
18. Houses closed	1	
19. Houses erected or re-built for which Water "Certificates" were applied	85	1 certificate may include one or more houses
20. "Certificates" granted	49	
21. deferred	1	
22. Wells " sunk or improved supplies of water afforded	...	Surveyor's department
23. Wells cleansed or repaired	2	
24. Wells closed	Nil	
25. Houses connected with sewers	...	Surveyor's department.
26. Houses connected with water mains	...	Surveyor's department.
27. Earth, pail, or improved Privies constructed or existing Privies altered	18	6 new pail closets, 12 privies altered into pail closets
28. Privies and W.C.'s repaired; W.C.'s supplied with water	41	4 W.C.'s supplied with water
29. Cisterns cleansed, repaired or covered	4	
30. Animals improperly kept removed	2	
31. Samples of water taken for Analysis	43	
32. Compensation paid for destruction of infected bedding	10/-	
33. Seizures of unsound Meat, &c.	Nil	

WILLIAM EDSER,

Inspector of Nuisances.